

**Archaeological Evaluation & Excavation at
Century Street
Hanley
Stoke-on-Trent
Staffordshire
NGR SJ 8794 4790**

Planning Application No. SOT/39188

Site Code: CSH05/06

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Appendix 1: List of ceramic finds

Non-technical Summary

Stoke-on-Trent Archaeology carried out an evaluation/excavation on the site of the former Brook Street Pottery, Century Street, Hanley, Stoke-on-Trent, Staffordshire (NGR SJ 8794 4790). Since at least the 1950s until its recent demolition, the site had been used for the production of lubricants.

The evaluation took place from December 2005 to February 2006 and during June 2006. It involved the excavation of four evaluation trenches, all of which contained archaeological remains and were extended and fully excavated. The structural remains of three pottery ovens were discovered in trench 3/4 all of which were up-draughts built during the mid-late 19th (ovens 2 & 3) and early-mid 20th (oven 1) centuries. An additional 20th-century oven was located in trench 1, which was originally sited to evaluate a brick kiln indicated on the 1866 OS map of Hanley. No trace of this structure was found. The fragmentary remains of four through-terrace houses were identified in trench 2, surviving only as cellar bases, some of which featured a stillage. These properties formed part of Buckley Terrace, first indicated on the 1866 OS map of Hanley.

Examination of the ovens revealed evidence of building and repair methods, which will add to our understanding of firing technology in the north-Staffordshire pottery industry. The poor survival of the residential properties resulted in little information being gathered about the standard of 19th-century housing in this part of Hanley.

1.0 Introduction

1.1 An application for planning permission (SOT/39188) for the mixed development of a site off Century Street, Hanley (NGR SJ 8794 4790, Fig. 1) was registered with Stoke-on-Trent City Council on the 29th October 2001. The City Council, acting upon the advice of the City Archaeologist, required that a scheme of archaeological work take place on the site as a condition of planning permission. This would take the form of an archaeological field evaluation (as defined by the Institute of Field Archaeologists) involving the excavation of four trenches, aimed at establishing the depth, nature, extent and quality of any archaeological deposits on site. Stoke-on-Trent Archaeology was subsequently commissioned to undertake the project by the developers, Lear Management Ltd.

2.0 Archaeological and historical background

2.1 Much of the development area, bounded to the south by Century Street and to the north by Sampson Street, was formerly occupied by the Pearl Pottery, originally known as the Brook Street Works. The eastern part of the site was occupied by terraced housing throughout much of the 19th and 20th centuries.

2.2 It is possible that an earlier works stood on the site. The 1777 manor map for the Booden Brook area, shows an encroachment on the north side of the turnpike road (now Century Street) which is described in the accompanying schedule as a 'pott house, paint house etc.' owned by Edward Boon (Roden 2004, 96). The precise function of this range of buildings is, however, unclear and it is possible that they merely served as a decorating shop and/or storage facility for the potworks of Joseph Boon, which lay across from the property on the southern side of the turnpike road. Edward Boon was, in all likelihood, Joseph's son and the two may have been in business together (Roden, 2004, 96). The small, linear range of buildings shown on the 1777 map are still apparent on Hargreaves' map of 1832 (Fig. 2) and the 1866 Ordnance Survey (OS) map of the site (Fig. 3). The latter also shows a small brick kiln to the north west of the buildings.

2.3 The date of the Brook Street Works' construction is unclear. Claims that the pottery was built in 1842 by Thomas Worthington (Stringer 1941) appear to stand at odds with the 1866 OS map of the site (Fig. 3) which shows the same set of buildings as those present on the 1832 map. It is possible that Worthington occupied the buildings formerly

held by Edward Boon. The partnership of Worthington and Green operated from the works from 1844-64 (Godden 1991, 700), listed in a trade directory of 1861 as manufacturers of Parian, china and earthenware (Harrison, Howard & Co. 1861, 453). The firm traded as Worthington and Son from 1864-93 (Stringer 1941) and it was during this period that the works was significantly enlarged. This is illustrated on the 1878 OS map, which shows a factory (now labelled as the Brook Street Works) with four ovens and a main range on Lower Clarence Street (now Sampson Street) (Fig. 4). The original range of buildings still appears along Brook Street in the western half of the works. An advertisement of 1867 presents the firm as manufacturers of toilet ware, ornamental china figures, stoneware and coloured bodies (Keates & Ford 1867, 47), whereas Jewitt, writing in 1878 (Jewitt 342), describes the produce of the works as ‘earthenware and stoneware, both for the home and the foreign markets’.

2.4 Alfred Fenton & Sons were in production at the works from 1894-99 (Stringer 1941), although Godden (1991, 245) has their occupancy dates as 1887-1901. Kelly’s Directory of 1900 (Kelly’s Directories Ltd., 695), however, appears to confirm that by this date the works was in the hands of the Pearl Pottery Co. Despite its new owners, the factory remains as the Brook Street Works on the 1900 to 1937 OS maps of the site (Figs. 5-7). In 1935 the works passed to the New Pearl Pottery Co. and in the following year the shares of this company were acquired by the New Hall Pottery Co. Ltd. (Stringer 1941).

2.5 The history of the factory after the 1930s is again unclear, although the 1950 OS map shows the complex as ‘The Pearl Works (Oil & Grease)’, suggesting that pottery production had ceased by this time (Fig. 8). The layout of the works, however, remains largely unchanged from the 1937 OS map, with five pottery ovens clearly indicated. By 1970, most of the works had been demolished (Fig. 9) and, prior to the present development, the site formed part of the Century Oil Works.

3.0 The evaluation

3.1 The evaluation was undertaken between 12th December 2005 and 8th February 2006 and 14th and 21st June 2006. Two of the evaluation trenches (3 & 4) were positioned according to the City Archaeologist’s *Brief & Specification* (Barker 2005), whereas trench 1 was shifted slightly to the south and west to avoid a gas pipe and standing structures, and trench 2 was relocated from its original location due to hydrocarbon

contamination in the area (Fig. 10). All of the trenches were found to contain archaeologically significant remains and were, in each case, extended to the maximum excavation area outlined in the project brief.

3.2 Each of the four trenches was machine excavated down to the first archaeological horizon and were then cleaned by hand and recorded. Scale plans and section drawings were produced, written descriptions made (*pro-formae* context sheets) and 35mm colour and black and white, and digital photographs taken. A TBM with a value of 100.0m was established on the corner of Granville House (Fig. 10). All levels were related to this TBM. Finds were sampled where appropriate. The site archive is stored at The Potteries Museum & Art Gallery, Stoke-on-Trent, site code **CSH05/6**.

3.3 The results of the evaluation are presented below.

Trench 1 - 8.70m E-W x 9.80m N-S (Fig. 11, Plate 1)

Trench 1 was located in the western section of the site and was targeted upon the location of a 19th-century brick kiln shown on the 1866 OS map of the site (Fig. 3).

No evidence of this brick kiln was identified during the course of the excavation, although the partial remains of a circular pottery oven (first shown on the 1924 OS map) and enclosing building (first shown on the 1900 OS map) were located in the southern half of the trench, along with evidence of later features relating to the Century Oils factory. These were found beneath a 0.13m thick concrete surface [102] and a rubble deposit [104], 1.07m thick.

The pottery oven was located in the south-western corner of the trench and had a probable maximum diameter of c.8.0m. It comprised an area of curved brickwork [111], [114], [165] and [117] and one complete ash-pit [112], 1.75m long, 1.27m wide and 0.33m deep. The ash pit was edged with yellow firebricks around a red brick base [169]. The ash pit was filled with a deposit of compacted black ash [168]. An area of brickwork was missing within the ash-pit base, which revealed a yellowish sandy bedding layer [172]. The partial remains of a second ash pit were located to the south, indicated by two rows of yellow firebricks [173]. Although the oven continued into the western section of the trench, further excavation was not possible due to the limitations of the site.

Adjacent to the oven was a floor surface of worn blue and red bricks [108] (4.62m SW-NE x 2.70m NW-SE x 0.10m thick) laid on edge. The floor was butted by linear brick walls [106] and [109] to the north and east respectively. Both walls were two bricks wide, surviving to between three to five courses in height (0.18m-0.37m), and marked the north-eastern corner of the building within which the oven was enclosed. A 20th-century brick wall [103] and concrete foundation [105], probably the north wall of the rectangular building indicated on the 1970 OS map of the area (Fig. 9), truncated both the oven base and walls [106] and [109] to the north.

Another structure was recorded in the south-facing section of the trench, represented by red-brick walls [147] (0.89m in height by 0.23m wide) and [132] (0.91m in height by 0.24m wide) and possible redbrick floor surfaces [129] (0.10m thick), [137] (0.08m thick) and [156] (0.08m thick) (Fig. 12a). Surface [129] looked to be bonded with a red-brick wall [123], 2.39m north-south and five courses (0.40m) high, which was observed in the west-facing section (Fig. 12b). Wall [123] was cut by [105], with three courses (0.26m high) of red bricks [124] subsequently laid loosely (without mortar) between the truncated end of [123] and the north face of [103]. The structure had been backfilled with up to 0.70m of rubble material, which had been cut by later services, and covered with 0.10m of tarmac.

The foundation cut for walls [147] and [132] was [174] and was filled with a compact silt and gravel deposit [139]. Feature [174] cut through the following contexts: [157] a gritty silt (0.38m thick) upon which floor [156] was laid, [158] a 0.58m thick loose silty deposit beneath [157], and [131] a loose silty deposit similar to [158], 0.68m thick. Contexts [131] and [158] contained mid-late 19th-century pottery waste.

Wall [132] also cut through [130] a compact silty layer, 0.24m thick, upon which floor [129] was laid. Floor [137] was laid upon [138], a 0.07m thick silty clay which lay against the western side of [132]. Wall [123] lay above [128] a silty clay layer, a maximum of 0.52m thick, and [126] a gritty brick rubble layer, 0.30m thick.

Beneath all of the above contexts at the base of the northern half of the trench were three clay and charcoal deposits [160], [161] and [163], which had also been cut by foundation [105].

Trench 2 – 15.2m E-W x 10.60m N-S (Fig. 13, Plate 2)

Trench 2 was located to reveal terraced houses that formed part of a row of six properties that first appear as Buckley Terrace on the 1866 OS map of Hanley (Fig. 3).

The removal of concrete [200] and rubble [201] to a depth of 0.67m in the southern half and 0.09m in the northern half of the trench, revealed the remains of four cellars, measuring 3.06m² (cellar 1), 3.74m² (cellar 2) and 4.08m² (cellars 4 & 5). Each of the cellars had blue-brick floor surfaces, with the remains of stillage shelves visible in cellars 2, 4 and 5, represented by brickwork plinths [212] (1.75m long x 0.22m wide x 0.26m high), [219] (1.52m long x 0.10m wide x 0.14m high), [226] and [232] (1.55m long x 0.11m wide x 0.28m high). The cellars also contained evidence of steps (between 0.70m and 0.79m wide) down from the properties, represented by brick remains [206], [215], [223] and [229].

Below step [215] in cellar 2, a ceramic drain pipe [235] was encountered which may have been connected to a grid [234] located in the north-eastern corner of the cellar. This probably continued into brick-lined drain [233] just to the south of the cellars. This seemed to be connected at its eastern end to a rectangular cut [240] (3.20m SW-NE x 2.50m SE-NW x 0.40m deep), which contained a silty clay fill [241]. This was initially thought to be a sump for drain [233], but as the drain slopes away from [240], this is unlikely. The function of [240] is, therefore, unclear.

The cellars, drainage feature and [240] were cut into two clay deposits [245] (located along the eastern edge of the trench) and [237] (present in much of the southern half of the trench). Deposit [237] looked to be redeposited material, although [245] was a natural clay deposit. In the south-eastern corner a rectangular ditch-like feature [238] (3.08m N-S x 1.78m E-W x 0.39m deep) of unknown function was also cut into [245]. This contained three fills (uppermost first): [239], [247] and [248], all of which included sherds of 18th-19th-century pottery waste.

A deposit of blackish silty clay [218] was recorded between cellars 2 and 4, which merged with a similar deposit [243] that sat above [245] to the north. Both [218] and

[243] were interpreted as a ground-levelling layers connected to the construction of the properties.

Trench 3/4 – 19m E-W x 14.7m N-S

Trenches 3 and 4 effectively formed a single, large excavation area and are presented here as such.

The evaluation trenches were sited to uncover the remains of three circular pottery ovens, two of which are first shown on the 1878 OS map of the area (Fig. 4), with the other initially appearing on the 1924 OS map (Fig. 6). The excavation subsequently established the presence of three ovens within the area, two of which were those indicated on the 1878 map, whereas the other first appears not on the 1937, but on the 1950 OS map (Fig. 8). All of the ovens appeared to be standard, coal-fired up-draughts and were situated below 0.10-0.20m of concrete [300]/[400], and 0.20-0.90m overburden [301]/[401].

Oven 1 (Fig. 15, Plate 3)

Oven 1 was the best preserved of the three ovens in trench 3/4, with the oven surviving to a height of 0.79m. It was constructed of a mixture of standard red brick and yellow firebricks and had a maximum diameter of 8.0m. It comprised a central domed area [402], 5.3m in diameter, constructed of firebricks laid in seven sectors, each separated by a ‘spoke’ of bricks laid flat, end-to-end. Evidence of vitrified med-feathers [450] was present above [402].

The outer ring of the oven contained ten well-preserved ash pits, all rectangular in shape, with internal dimensions varying between 1.10m and 1.54m long by 0.70 and 0.96m wide, with a depth of 0.24m. Each contained a mixture of demolition rubble and/or fuel waste, which was removed from pits 1 [403], 4 [406], 6 [408] and 9 [411]. Ash pits 1 and 6 each had sets of twelve iron fire bars ([425] and [477] respectively) positioned longitudinally above them (Plate 4a). Each of the bars was rectangular in section and measured 97cm x 4.5cm x 3cm. Ash pit 4 contained a set of three *in situ* square-sectioned, lateral iron fire bars [426] (a maximum of 76cm x 6cm x 6cm) (Plate 4b). These would have been used to support bars such as those observed in pits 1 and 6 during firing. Firebricks would have been placed on top of these longitudinal bars both to provide a platform for the burning coals from the firemouth above and to reduce draughts

entering the oven. The longitudinal bars would have been removed after firing to allow the ash pit to be raked out.

Brick fire arches were present above ash pits 1 [423], 4 [424], 6 [478], 8 [479] and 9 [481]. Each of the brick fire arches was constructed of yellow fireclay voussoirs, each measuring c.14cm x 11cm x 6cm wide (tapering to 4cm), all of which were highly vitrified on their inner faces.

The brickwork in between each ash pit featured an outer ring of four curving rows of red frogged bricks, with an inner ring of three to four curving rows of yellow firebricks. The maximum width of the brickwork between ash pits was 1.30m, although this differed between ash pits 4 and 5. This brickwork [416] was a maximum of 1.80m wide, comprising five outer curving rows of frogged red bricks, followed by two inner curving rows of red firebricks, with the whole block edged on three sides by highly vitrified yellow firebricks. Set into the surface of brickwork [416] were the remains of the metal frame [472] for the entrance into the oven (the 'wicket' or 'clammins'). The entrance was also marked by a 0.56m x 0.29m x 0.23m grey sandstone block [471], which acted as a step-up into the oven (Plate 5). Attached to the oven's external shell was the first rung of metal bonting [427], which restricted the oven's expansion during firing.

Surrounding the oven were blue-brick working areas [467], [458] and [468]. The surface to the east of oven 1 [467] was bounded on its eastern side by a linear brick wall [428]. This seems to represent part of the eastern wall of the building within which ovens 1, 2 and 3 are enclosed on the 1950 OS map of the site (Fig. 9). Indeed, all of the OS maps from 1880 to 1950 indicate that the ovens in this part of the site were situated within a single building, rather than individual hovels (Figs. 4-9).

Oven 2 (Fig. 13, Plate 6)

This had a maximum diameter of 6.4m and was composed of a central, domed area of red brick [302]/ [453], 4.4m in diameter, with areas of yellow firebricks [440], [439], [438], [437] and [455] located around the edges of the base. A radial formation of vitrified brick med-feathers [452] partially overlaid the base and stood to a maximum height of 0.21m. The remains of four ash pits [441], [442], [443] and [444] were visible, although only pit 3 [443] was complete, with internal dimensions of 0.74m long by 0.63m wide. Each ash

pit was filled with a grey, gritty ash. A firebrick arch [443] remained *in-situ* above ash pit 3.

Oven 2 was cut by a later factory wall [303], which was aligned north-south. Several patches of brickwork located on the western side of wall [303] represented further evidence of oven 2, including a possible ash pit in the form of brickwork [310], [311], [312] and [313]. The northern edge of the oven was cut by a concrete and brick base [325]/ [324], which again probably related to the Century Oils factory.

Fragments of a blue-brick surface [314], [336] were observed to the north west of ash pit [313] and to the west of brick and concrete base [325]/ [324]. These formed part of the floor surfacing that surrounded all three ovens in trench 3/4.

Once recorded, a section was cut through oven 2 to a depth of 1.60m (Section A-A, Fig. 14, Plate 7) in order to expose its internal construction. Brickwork [302] was one course deep and laid upon a 0.08m thick red/brown silty sand bedding layer [353]. Two further sandy layers [354] and [355], 0.06m and 0.06-0.19m deep respectively, and a layer of saggar waste [356] to a depth of 0.33m were recorded below [353]. Two rows of red and yellow bricks [357] and [358] were observed below [356], laid on edge and pitched to form a dome. It is probable that this represented the remains of an earlier oven, upon which oven 2 had been constructed. The sandy deposits [359]-[363] (a total of 0.80m deep), observed beneath [357] and [358], related to the construction of this earlier structure. Surface [357] and [358] butted another brick structure [365] to the north, which also seemed to belong to this earlier oven and was bonded to another block of brickwork [366] on its northern side. A single layer of bricks [369] laid flat over [366] and part of [365] formed the base of an ash pit for oven 2 that was filled with a black silty clay loam [304]. The back of the ash pit was formed by [364], which butted [365] and sat over [357]. The lack of a central well and exit flue indicated that this was an up-, rather than down-draught oven.

Oven 3 (Fig. 13, Plate 8)

Oven 3 was located in the north-western corner of the trench and had a maximum diameter of 8.0m. It consisted of a central dome of red brick [327] and [329], 4.10m in diameter, surrounded by areas of yellow firebricks. Two layers of brown/red sandy ash

[337] (0.07m thick) and [351] (0.32m deep), overlaid [329] and may have formed bedding material for another, now lost, brick layer. The oven had been cut to the north by the installation of a ceramic drainpipe [328] with further disturbance caused to the central section by another drain [330]. The south and south-eastern parts of [327] were overlain by a modern concrete surface [323].

The remains of six ash pits were uncovered around the edge of the oven, each containing the same gritty ash fills. The most intact examples were ash pits 1 [339] and 2 [340], with respective internal dimensions of 1.50m long by 0.75m wide and 1.60m long by 0.69m wide. Each included a lateral iron fire bar located towards the back of the ash pit, which was keyed into the oven brickwork [327]. Of the others, the north-eastern corner of ash-pit 3 [326] was just visible below concrete structure [323], ash-pit 4 [320] was disturbed by the general demolition rubble and ash-pit 5 [319] was cut through on the western side by a modern drain [335].

4.0 Ceramic finds (see Appendix 1 for list)

4.1 A total of 676 sherds (18,636g by weight) were recovered from nineteen contexts during excavations at Century Street. This material was divided into ware types and vessel forms and quantified by means of sherd count and weight.

4.2 The assemblage entirely comprises industrial pottery waste, representing some of the typical products of the north-Staffordshire potworks from the mid-18th to mid-20th century. Approximately 56% of the assemblage (by sherd count) can be comfortably dated on stylistic grounds to the late 19th to mid 20th centuries. This material is composed of earthenware vessel sherds, both biscuit and glazed, with some kiln furniture. Vessel forms are mostly tablewares, particularly plates. Three small groups within the assemblage are worthy of comment in that they can be more tightly dated to the periods *c.*1760-80 (principally contexts [201] and [203]), *c.*1851-66 (context [363]) and *c.*1862-72 (context [131]).

4.3 The earliest groups, particularly that from [203], are dominated by fruit basket-, cauliflower-, pineapple- and melon-moulded creamwares with coloured glazes (Plate 9). These appear in a narrow range of tea ware forms, comprising tea bowls, teapots and teapot covers. Creamwares with under-glaze tortoiseshell decoration and with over-glaze

enamel colours also feature in the form of tea bowls, saucers and teapots. Undecorated creamwares are represented by a small number of sherds and include a single straight-sided mug, large bowl and a teapot. Some white salt-glazed stonewares are present, including one scratch blue tea bowl sherd and three placing rings. A handful of sherds, including a slip-decorated earthenware bowl, represent later, intrusive material.

4.4 Eight of the eleven ironstone tableware sherds from [363] have the printed marks of Livesley Powell and Co., who operated from the Old Hall Lane and Mile Bank Potteries, Hanley from 1851-66 (Godden 1991, 392). Two transfer-printed designs feature in the group: 'Abbey' (Plate 10) which appears on two plates (one in blue, the other black), one saucer (in blue) and one jug (again in blue), and 'Alhambra', present in red on a saucer sherd. The other sherds, all plates, have no applied decoration, although two examples have moulded rims.

4.5 Context [131] features a collection of earthenwares; predominately transfer printed but with some slip-decorated and sponge-decorated examples, supplemented by a small number of smear-glazed, black stonewares and ironstone types with moulded decoration. Forms are mostly tea and tablewares, including saucers, bowls, cups, plates, tureens and dishes. More utilitarian vessels such as jars and basins are represented by a small number of sherds. The printed designs are mostly blue in colour, with some 'flown' examples, upon which the glaze and print are diffused. Two flow blue designs are identifiable from printed marks, namely 'Hindoostan' and 'Juvenile Sports' (Plate 11), with Willow pattern recognisable upon several other vessels. One jar fragment bears the arms of the City of London Poor Law Union. The printed mark of William Hackwood and Son, resident at the New Hall Pottery, Shelton from 1846-9 (Godden 1991, 300), features on one sherd (that with the 'Hindoostan' design), but is accompanied by an impressed 'HARDING', indicating the partnership of W & J Harding which also operated from New Hall between 1862 and 1872 (Godden 1991, 310). W & J Harding appear, therefore, to have re-used the prints of their predecessor at the works. The impressed 'HARDING' mark appears on several sherds, although only two sherds feature the printed mark of the partnership, 'W.& J. H.'. One of these is decorated with a Willow design, the other with the aforementioned 'Juvenile Sports'. Two sherds bear the printed mark of an importer/retailer, 'G & F [W] CECCHI LONDON & FLORENCE', one of which also has an impressed W & J Harding mark (Plate 12).

4.6 A table of spot dates for each context group is presented below:

Context	Context description	Date
104	Rubble overburden in S half of trench 1	late 19 th century
128	Clayey silt layer seen at base of W-facing trench section. Possible levelling material for wall [123]	late 19 th -early 20 th century
131	Silty deposit in NE corner of trench 1	c.1862-72
158	Silty deposit observed at base of S-facing section of trench 1, W half.	mid-late 19 th century
163	Silty clay layer in NW quarter of trench, cut by wall [103]	late 19 th -early 20 th century
201	Rubble layer below concrete surface [200] in trench 2	c.1760-1780
203	Clay deposit below [201] and above [237] and [245] in S and E areas of trench 2	c.1760-1780
239	Tertiary fill of cut [238] in SE corner of trench 2	18 th -19 th century
241	Fill of cut [240] in trench 2	18 th -20 th century
247	Secondary fill of cut [238]	18 th -19 th century
248	Primary fill of cut [238]	18 th -19 th century
301	Rubble overburden in trench 3	late 19 th century
306	Fill of construction cut for wall [305]	late 19 th century
343	Fill of drain cut [330]	late 19 th -20 th century
348	Fill of ash pit 5 [319], oven 3	late 19 th -20 th century
351	Layer of ashy sand above [329], oven 3	late 19 th -20 th century
363	Clay loam layer forming part of 'cork' of earlier oven within oven 2	c.1851-66
445	Fill of ash pit 1 [403], oven 1	20 th century
463	Fill of ash pit 6 [408], oven 1	20 th century

4.7 Most of the ceramics were recovered from contexts relating to the demolition of factory structures and the associated re-deposition of predominantly 19th- and 20th-century material on site. The mid-late 18th-century material from [203] is one of the few exceptions, being seemingly associated with the horizons into which the terraced

properties were cut. The sherds represent the disposal of factory waste on site prior to the construction of the properties.

4.8 The waste material dating to c.1862-72 from [131] probably represents a similar practice, as the wares originated from the New Hall Pottery, located on Great York Street. The [131] assemblage, along with that of a similar but slightly later date (c.1870-1880) from neighbouring context [158], were recovered from the general area occupied by a brick kiln on the 1866 OS map of the site. Considering the date range of the material, it is conceivable that the material was present in this area before the kiln was built, but it is equally possible and perhaps more likely that it was deposited on site after its demolition. This would suggest that the kiln's active life came to an end no later than the early 1870s. It would also provide the earliest date for the construction of the building recorded in the south-facing section of trench 1.

4.9 The Livesley Powell & Co. wares from [363] do not, however, appear to be indicative of random waste disposal, as they form part of the 'cork' of one of the Brook Street factory's ovens. It is possible that waste for the construction of the oven was bought in by Worthington and Green, resident at the Brook Street Works during the period that the wares from [363] are likely to have been produced. Although the works would have had sizeable quantities of pottery waste at its disposal for construction purposes, the factory underwent significant expansion during this period and may have required additional amounts. There is evidence that factory owners did attempt to sell waste material for building use. In 1805, the Don Pottery, Leeds sold 136 loads of waste sherds for use in road building to the township of Swinton at a price of 1/- per load (Griffin 2001, 34). A further 260 loads, again at 1/- per load, were sold by the works in April 1811 (Griffin 2001, 34.). It is highly probable that similar transactions were made in Stoke-on-Trent. By whatever means it arrived on site, however, the presence of the Livesley Powell material in the cork of oven 2 provides a *terminus post quem* of 1851 for its initial construction.

5.0 Discussion

5.1 The cellars excavated in trench 1 related to a row of terraced properties which first appear on the northern side of Brook Street (now Century Street) on the 1866 OS map of Hanley (Fig. 3). The excavated cellars formed part of the central four properties of the

original row of six. Map evidence from 1878 and 1900 shows seven houses in the terrace (Figs. 4 & 5), an additional property having been added to its western end. By 1924 this and the other two westernmost properties look to have been subsumed within the expansion of the adjoining pottery factory (Fig. 6), although one of these houses reappears on the 1950 OS map (Fig. 8). All of the properties had been demolished by the 1970s (Fig. 9).

5.1.1 It was clear that ground levels on site had been significantly reduced during the demolition of the houses and their subsequent fragmentary state offered little information about the nature of the original properties. Map evidence indicates that the properties were all through terraces with rear extensions. Assuming that they follow the typical layout for such houses in the Potteries, the Century Street properties would have had three rooms on the ground floor: a parlour at the front, a general living/eating area in the middle room and a kitchen to the rear. The upper floor would, in all likelihood, have featured two bedrooms, although some, more middle-class properties also had an additional bedroom over the rear extension. The position of the excavated remains suggests that the houses had cellars beneath at least part of the middle rooms, probably accessed via a set of steps positioned underneath the stairs to the upper floor. It is unclear if these were full or half cellars, although the presence of stillage shelves within the remains of cellars 2, 4 and 5 point to their use as a food store. No evidence of coal storage was found.

5.2 The partial remains of the oven excavated in trench 1 represents the example indicated at the western end of the works on the 1924 and 1937 OS maps of the site (Figs. 6 & 7). It is, however, probable that the oven was earlier, as the building within which it was enclosed is indicated on the 1900 OS map; an edition which fails to show any of the ovens indicated on the 1878 map. This later oven was located slightly to the south west of the 1866 brick kiln and would have partially overlapped its south-western quarter. No definite evidence of the brick kiln was identified in the trench.

5.2.1 The structure recorded in the south-facing section of trench 1 probably relates to the building which had been added to the northern side of the range containing the oven by the time of the 1900 OS map (Fig. 5). This remained until at least 1937 (Fig. 7), but had

been demolished by 1950 (Fig. 8). A later building, represented by wall [103] had been built in its former location (and also that of the oven range) by 1970 (Fig. 9).

5.3 Ovens 2 and 3 excavated in trench 3/4 correspond with the positions of two of the four pottery ovens shown within the Brook Street Works on the 1878 OS map (Fig. 4). Oven 1, excavated in trench 3/4, matches the location of one which first appears on the 1950 OS map (Fig. 6), replacing an oven which is shown slightly to the south on the 1924 and 1937 OS maps (Figs. 6 & 7). This slight repositioning looks to have been undertaken in line with a change made to the factory's eastern boundary at some point between 1937 and 1950. Ovens 1, 2 and 3 had all been demolished by the 1970s (Fig. 9).

5.4 Ovens 1, 2 and 3 were all diagnostic of the coal-fired, up-draught variety (the exit vents and flues of the down-draught type were absent), whereas the partial oven from trench 1 was, due to the poor level of preservation, of indeterminate type. Up-draughts worked on the simple principle of heat generated at the bottom of the oven, moving up through the chamber full of wares and exiting from the main stack. Heat from the fire mouths positioned around the edge of the oven was transferred to the main chamber via a system of under-floor flues that terminated in a central 'well hole'. Each firemouth would have also featured a 'bag', which rose vertically from the mouth into the oven interior. The under-floor flues were constructed of brick 'med-feathers' laid in a radial formation: an arrangement that was apparent on both ovens 1 and 2. The distinct vitrification of the med-feather brickwork testified to the intense heat in this part of the oven. A biscuit oven, for example, could reach temperatures in excess of 1000°C during its 62-hour firing (Hind 1937, 91).

5.5 The absence of hovels around any of the excavated ovens suggests that they were all close-coupled structures, in which the stack was placed directly on top of the main chamber and projected through the roof of the building in which the oven was located.

5.6 It was not possible to accurately determine if the ovens were used for biscuit or glost firings, as the basic structural design of each type is identical. Some clue may, however, lie in the internal diameters (the size of the oven chamber interior) of the excavated ovens. There is some evidence to suggest that, in general, biscuit ovens had a larger internal diameter than their glost counterparts (Hind 1937, 61-3). The oven from trench 1

and ovens 1 and 2 from trench 3/4, would have each had an internal chamber diameter of approximately 6m, which, according to Hind's figures (and taking into account the output of the factory) identify them as likely examples of up-draught earthenware biscuit ovens. Oven 3 had a somewhat smaller internal diameter of 4.5m, which approximated to Hind's (1937, 61-3) dimensions for an up-draught china biscuit oven. These attributions should, however, be treated with caution, as oven size is just as likely to vary according to factory size and composition and, of course, by date.

5.7 The half-sectioning of oven 2 revealed the foundation material upon which the pottery oven was built. The brick fabric of the oven was constructed upon layers of pre-fired material, including sand, broken saggar, kiln furniture and brick. This followed a common method of foundation design in which a 'cork' of pre-fired material was utilised to prevent the oven from drawing moisture from the surrounding earth during firing, thus minimising the risk of subsidence beneath the structure (Sandeman 1901, 193-5).

5.7.1 The cork for oven 2 incorporated an earlier oven [357], [358] and [365], which itself had a cork construction [360]-[363]. Pottery from context [363] indicates that this earlier oven was constructed at some point after 1851. Map evidence indicates that the oven was built at some point between 1866 and 1878.

5.7.2 The practice of utilising the bases of demolished ovens was a common one, probably dating back to the 18th century (D. Barker pers comm). Ovens underwent regular repairs, particularly in those areas subjected to intense heat. The bags in a biscuit oven, for example, would require some degree of repair after every firing (Sandeman 1901, 222). The superstructure of an up-draught oven was placed under a great deal of stress due to the inefficiency of the firing process. Of the total heat generated by the oven during firing, 36.36% was lost in heating the brickwork and outer shell (a further 52.30% was lost in waste gas, ashes etc., with only 11.34% reaching the saggars and ware) (Hind 1937, 70). As indicated by the earlier structure within oven 2, more substantial repairs and complete rebuilds also appear to have been undertaken periodically; possibly every 20 years (Sandeman 1901, 197). Evidence for rebuilding has been observed on other factory sites in the Potteries and seems to have taken place within the footprint of the previous structure (see Goodwin 2006, 3).

5.8 The pottery assemblage provides some evidence of the types of wares produced by potworks in the Brook Street area during the latter half of the 18th century. Later material stems from the New Hall Pottery, which was located to the south-east of the Brook Street Works and from the Miles Bank or Old Hall Lane works of Livesley Powell & Co. Mid-19th-century material from the latter works was recovered from the ‘cork’ of an earlier oven built into the foundation of oven 2 in trench 3/4. None of the wares recovered could be attributed to the Brook Street Works, although at least some of the durable earthenwares which dominate the assemblage probably represent the factory’s output.

6.0 Conclusions

6.1 The excavations at Century Street have allowed the detailed investigation of the construction and use of two up-draught pottery ovens dating from around the mid 19th to mid 20th century. A further partial 20th-century oven was also uncovered. All relate to the Brook Street Works, a typical, moderately-sized potworks that operated through the 19th-century heyday of pottery production in Stoke-on-Trent. In common with many other similar works, the fortunes of the Brook Street factory declined during the 20th century, and by the 1950s the complex had been turned over to oil and grease production.

6.2 Examination of the ovens has revealed evidence of building methods, which will add to the corpus of information collected from previous excavations and increase our understanding of firing technology in the north-Staffordshire pottery industry.

6.3 A small number of properties of mid-19th date were uncovered in trench 2, but survived only as cellar bases. As such, the excavated evidence provided little information about the standard of 19th-century housing in this part of Hanley.

7.0 Acknowledgements

7.1 This report was written by Deborah Forrester of Stoke-on-Trent Archaeology with the exception of section 4.0, which was written by Jonathan Goodwin. Illustrations are by Tracy Weston and Heather Cope. Valuable assistance was provided by Michael Coulton of Celthill Ltd. and Hamid Ejtehadi of Lear Developments. Thanks are also due to Lewis Cabin Hire.

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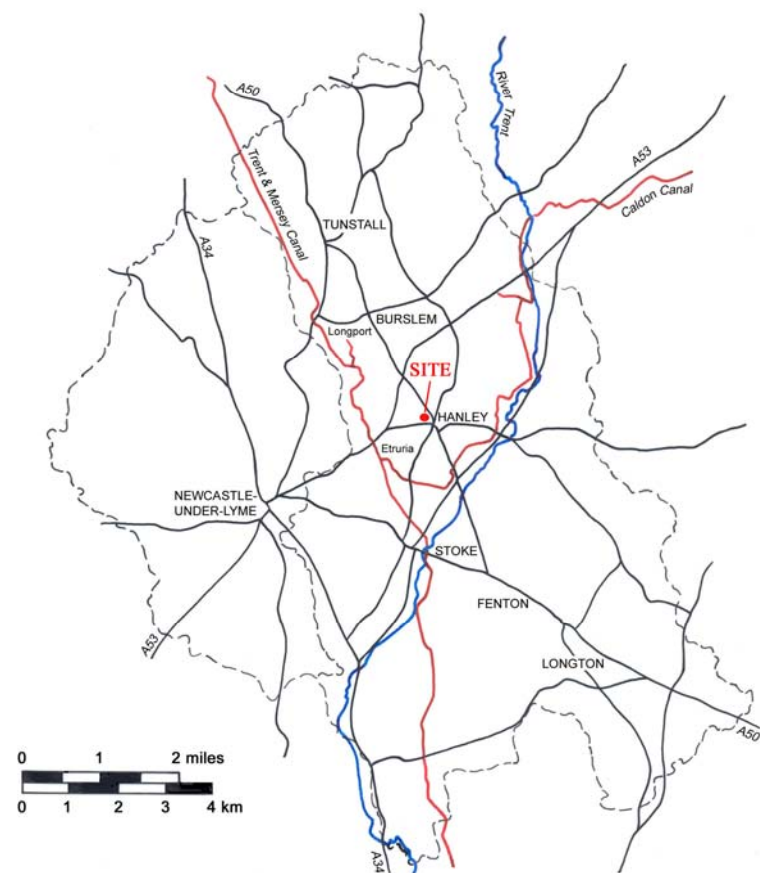
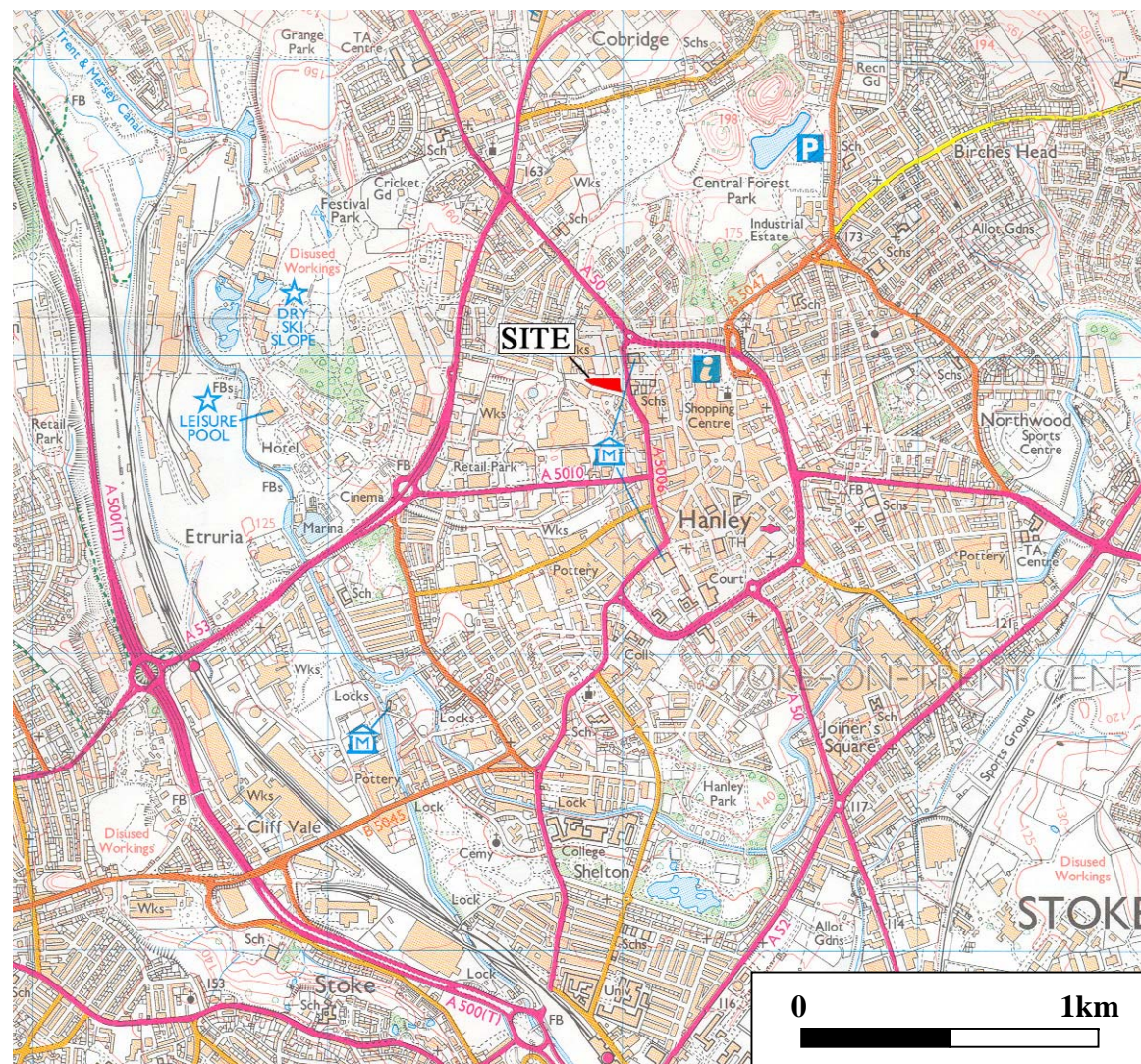


FIG. 1
Site location



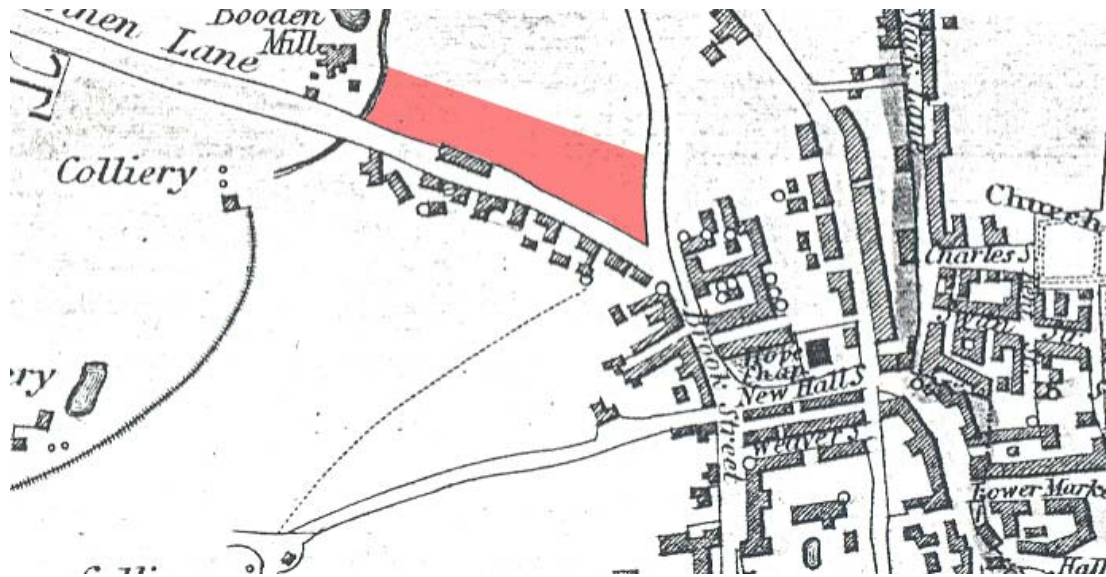


FIG. 2

Extract from Hargreaves' map of 1832, showing the approximate location of the development area



FIG. 3

Extract from 1866 OS map of Hanley, showing position of trenches (numbered).
Excavated cellar numbers are also indicated

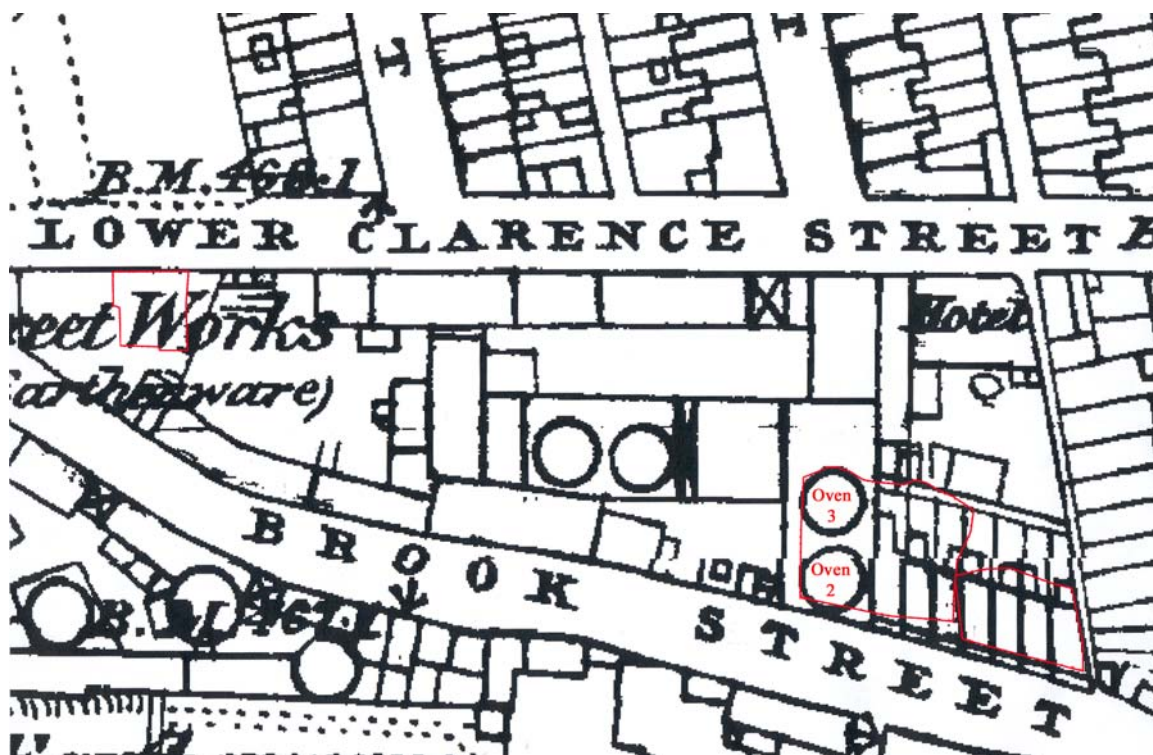


FIG. 4

Extract from 1878 OS map of Hanley, showing position of trenches. Excavated ovens 3 & 2 are also indicated

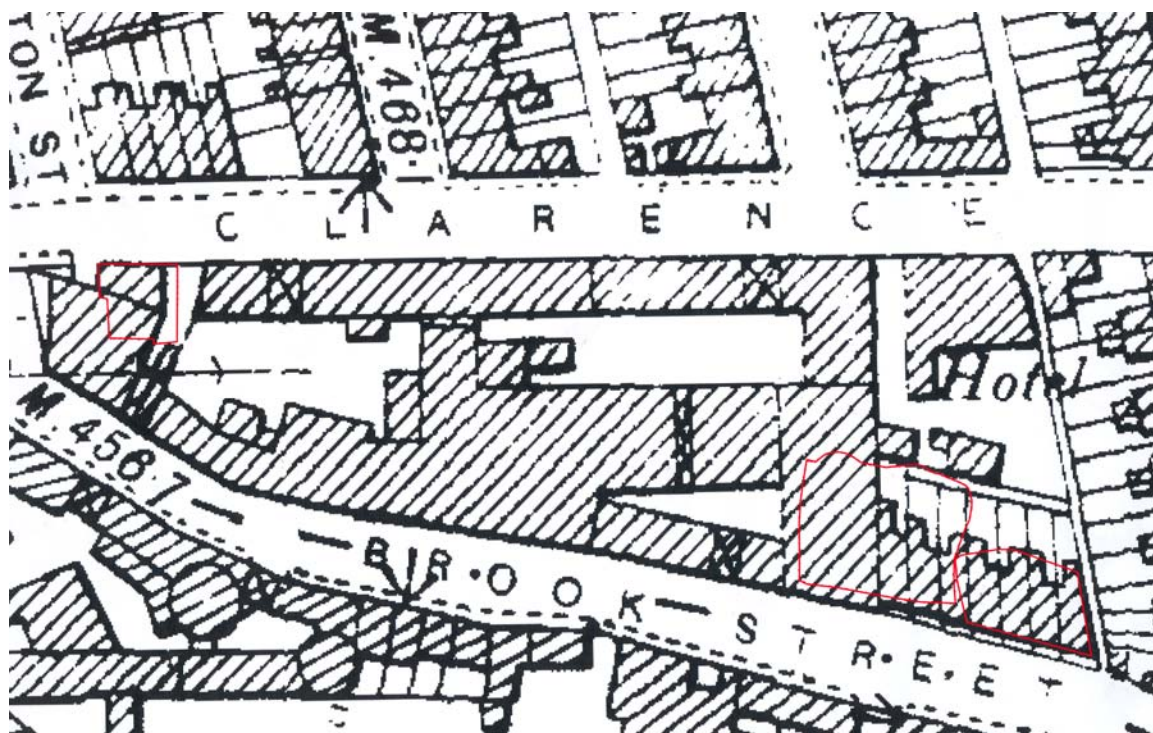


FIG. 5

Extract from 1900 OS map of Hanley, showing position of trenches. Note the appearance of the building excavated in trench 1

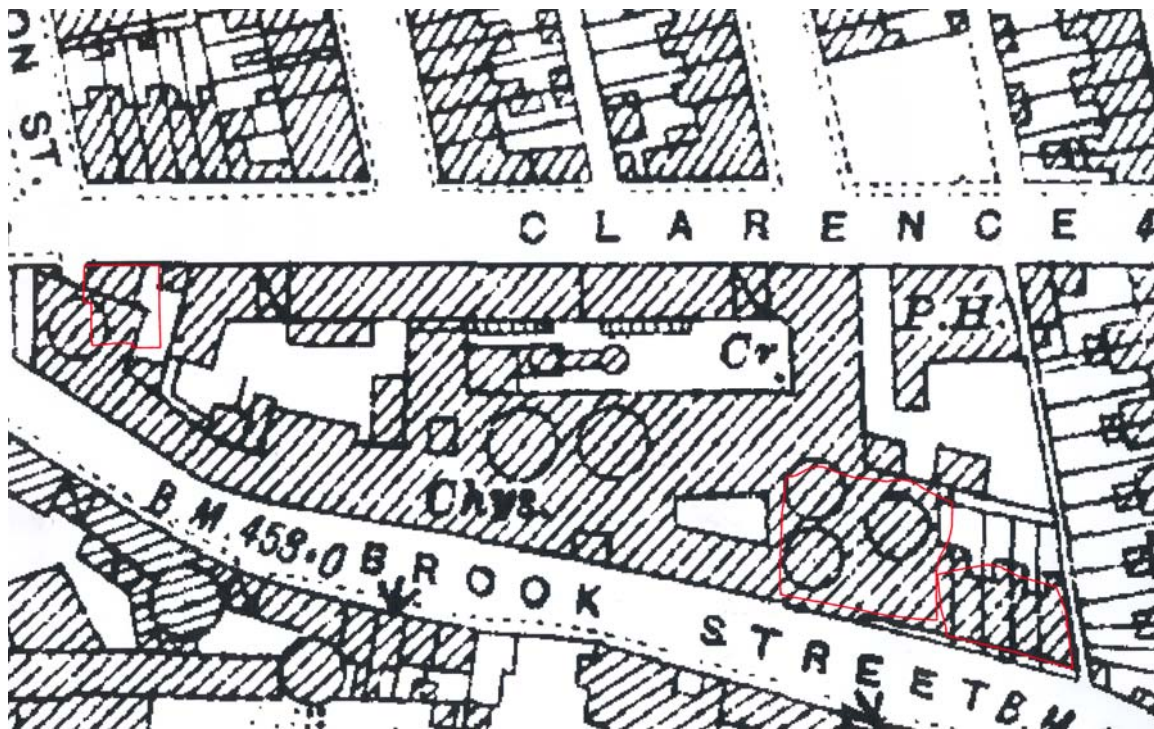


FIG. 6

Extract from 1924 OS map of Hanley, showing position of trenches. The oven excavated in trench 1 is now shown

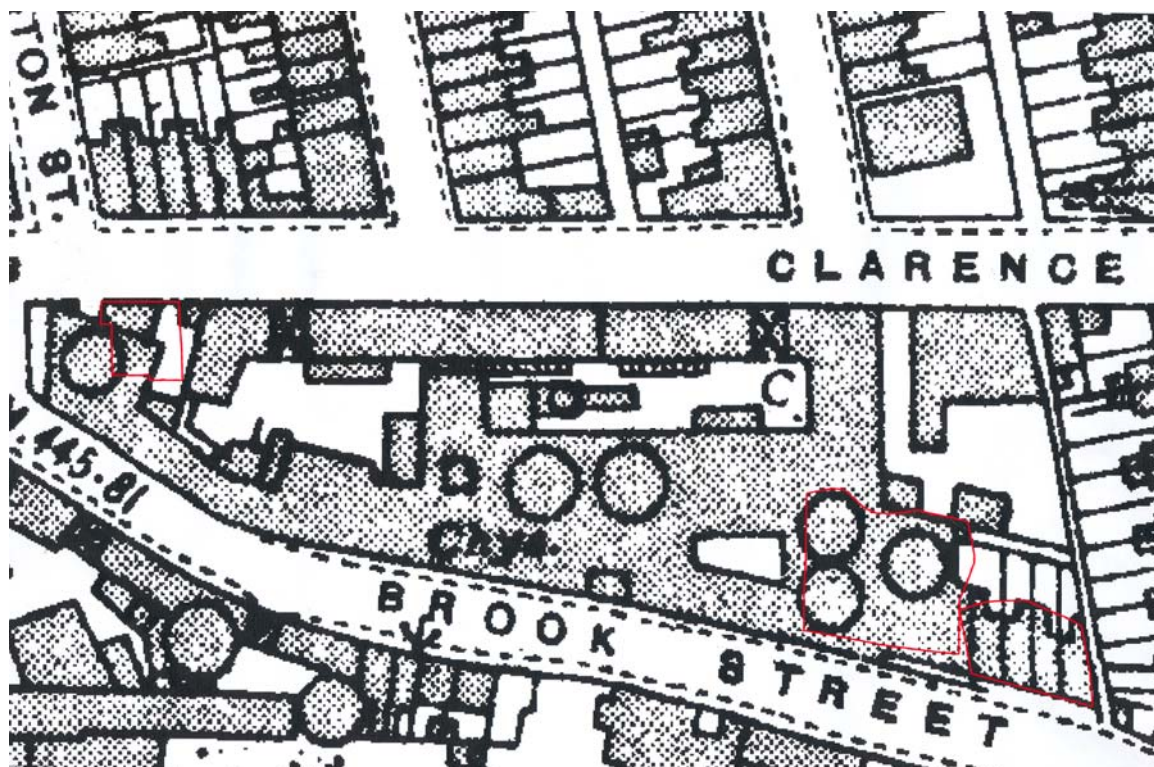


FIG. 7

Extract from 1937 OS map of Hanley, showing position of trenches

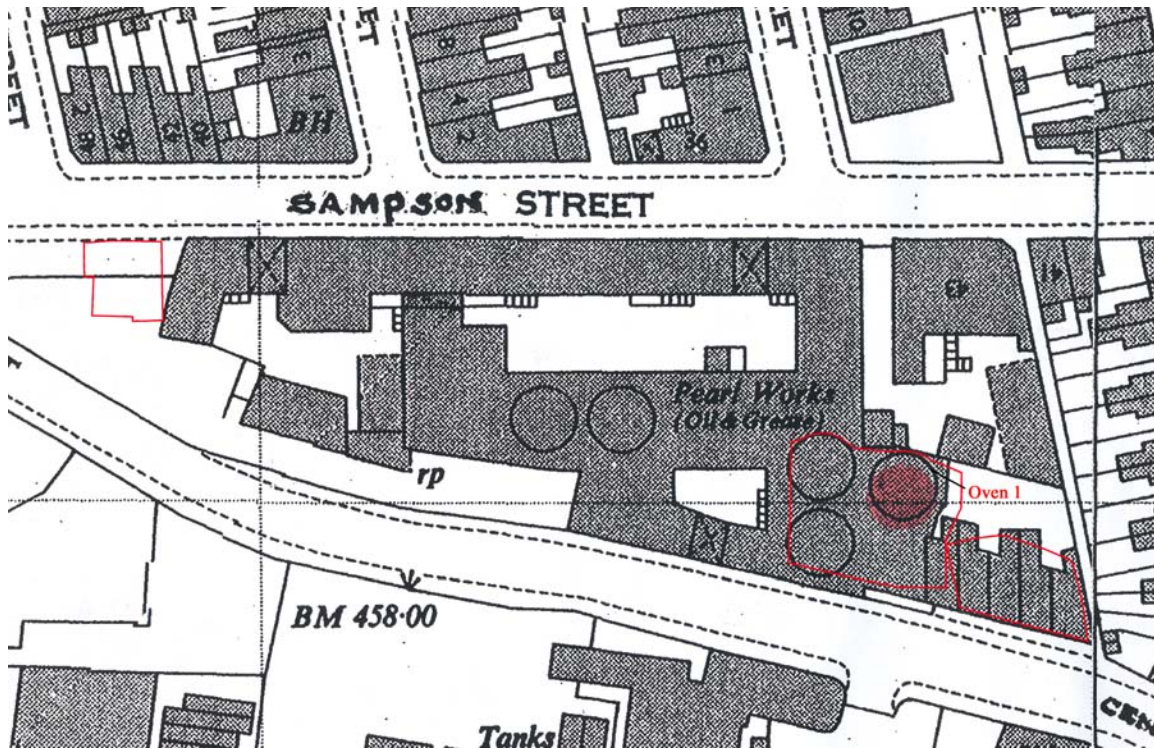


FIG. 8

Extract from 1950 OS map of Hanley, showing position of trenches. Oven 1 excavated in trench 3/4 is marked, as is the position of the oven shown on the 1937 OS map

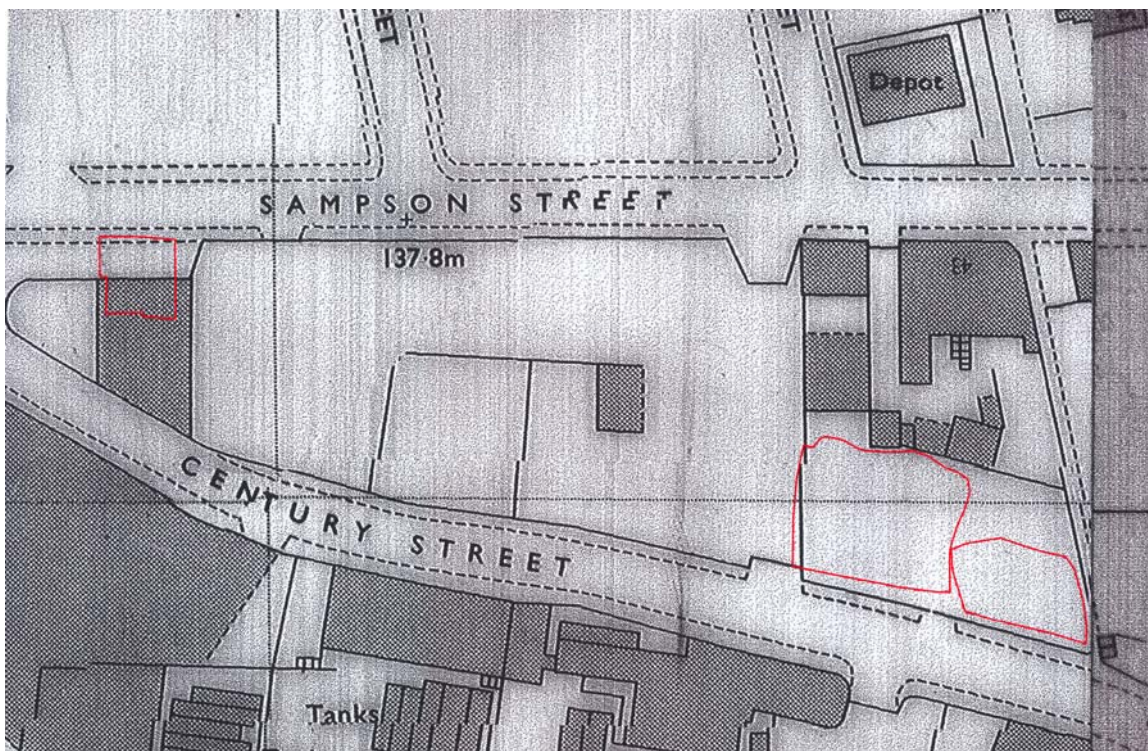


FIG. 9

Extract from 1970 OS map of Hanley, showing position of trenches

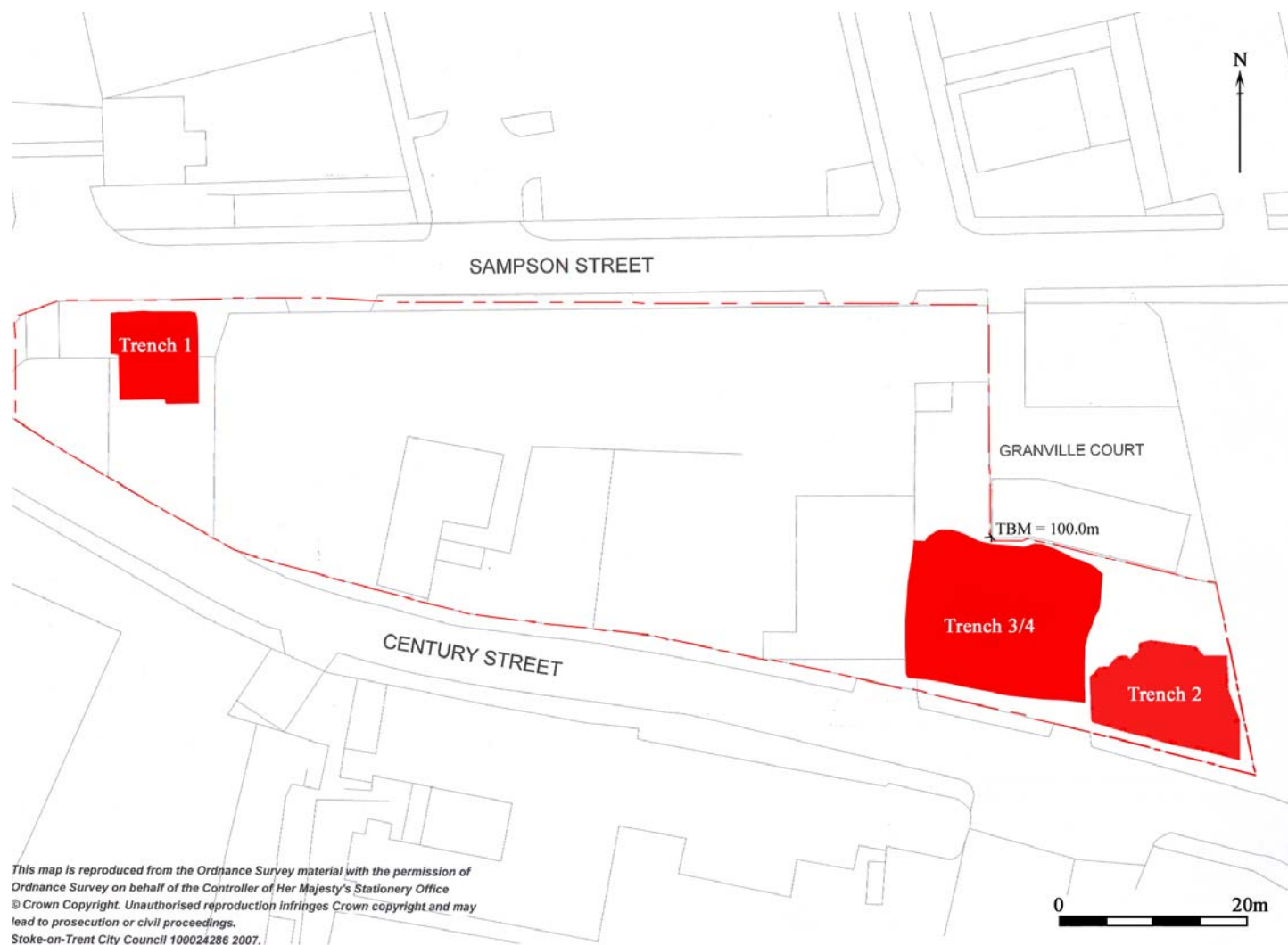


FIG. 10

Site plan showing trench locations and site boundary

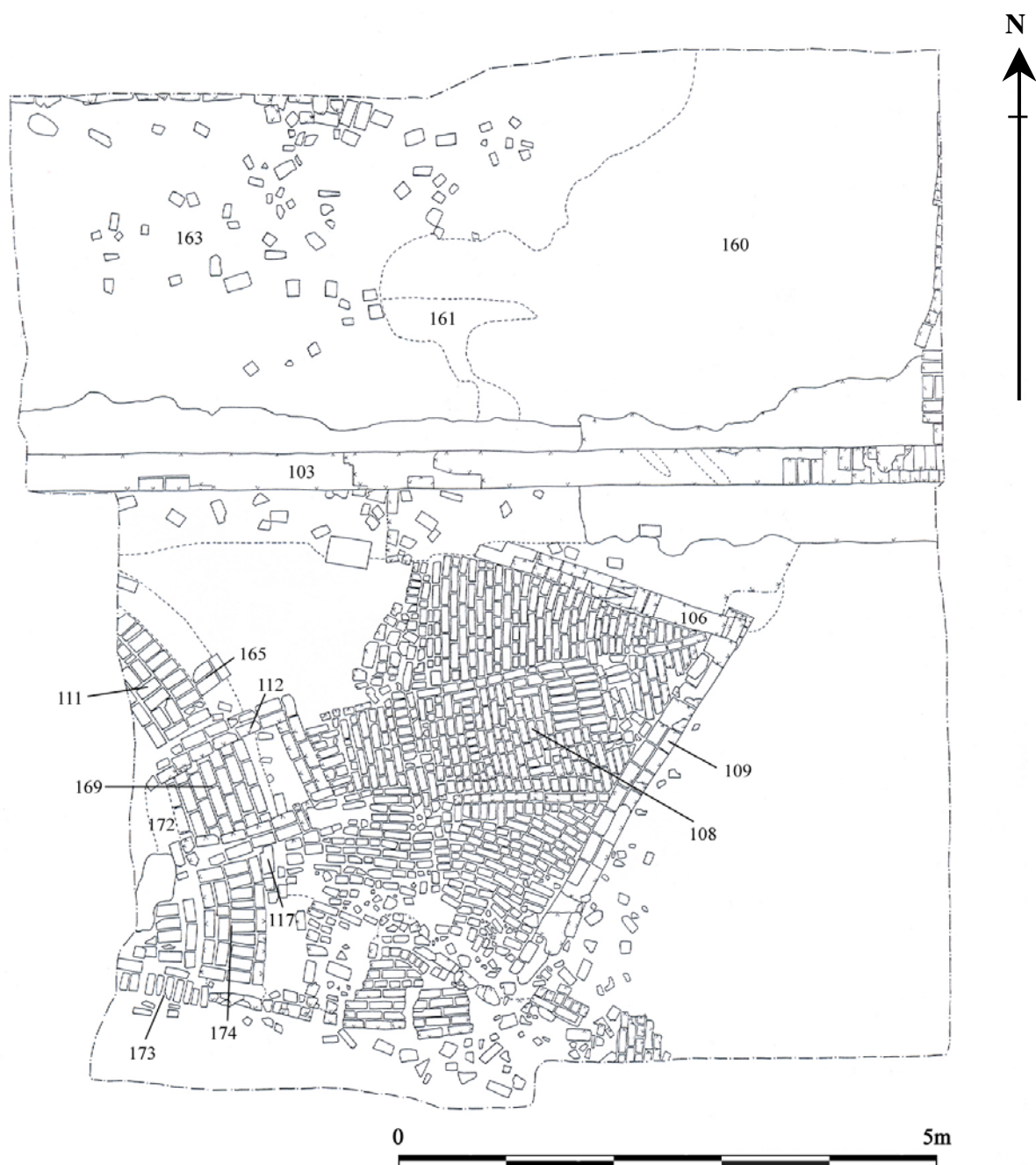
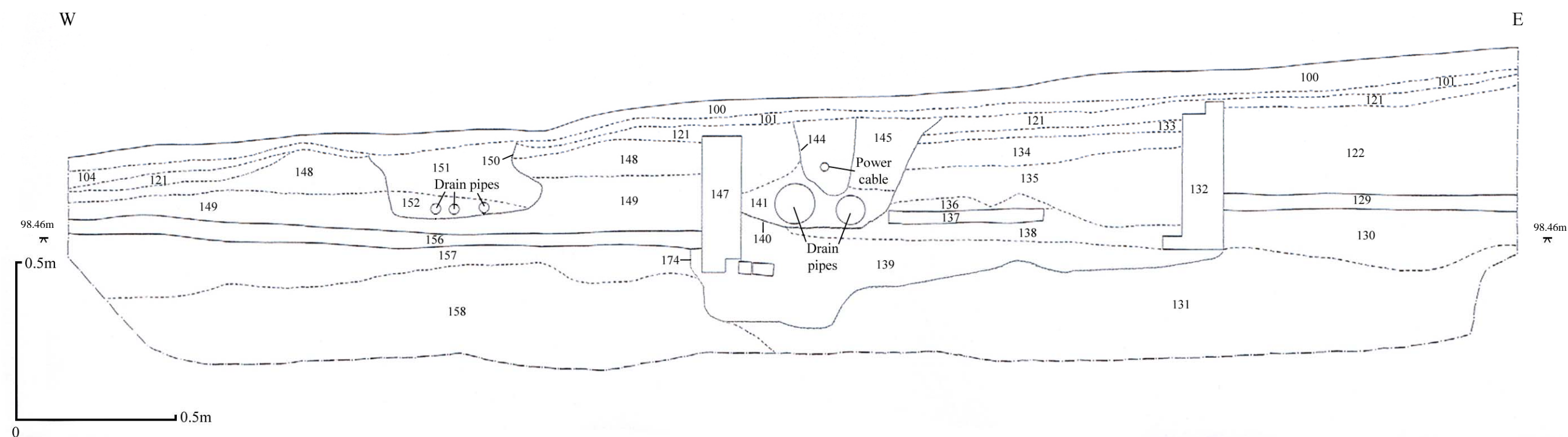


FIG. 11

Post-excavation plan of trench 1

a



b

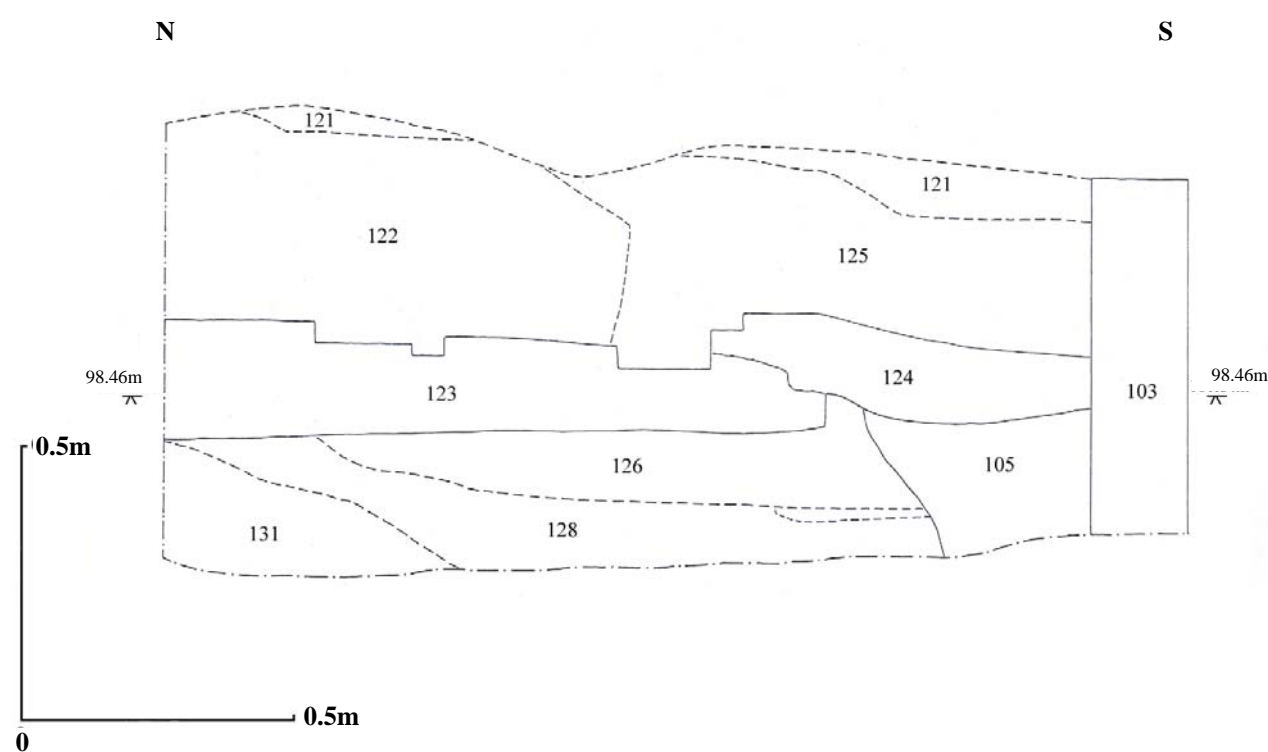


FIG. 12

a) South-facing section of trench 1 *b)* West-facing section of trench 1 (northern half)

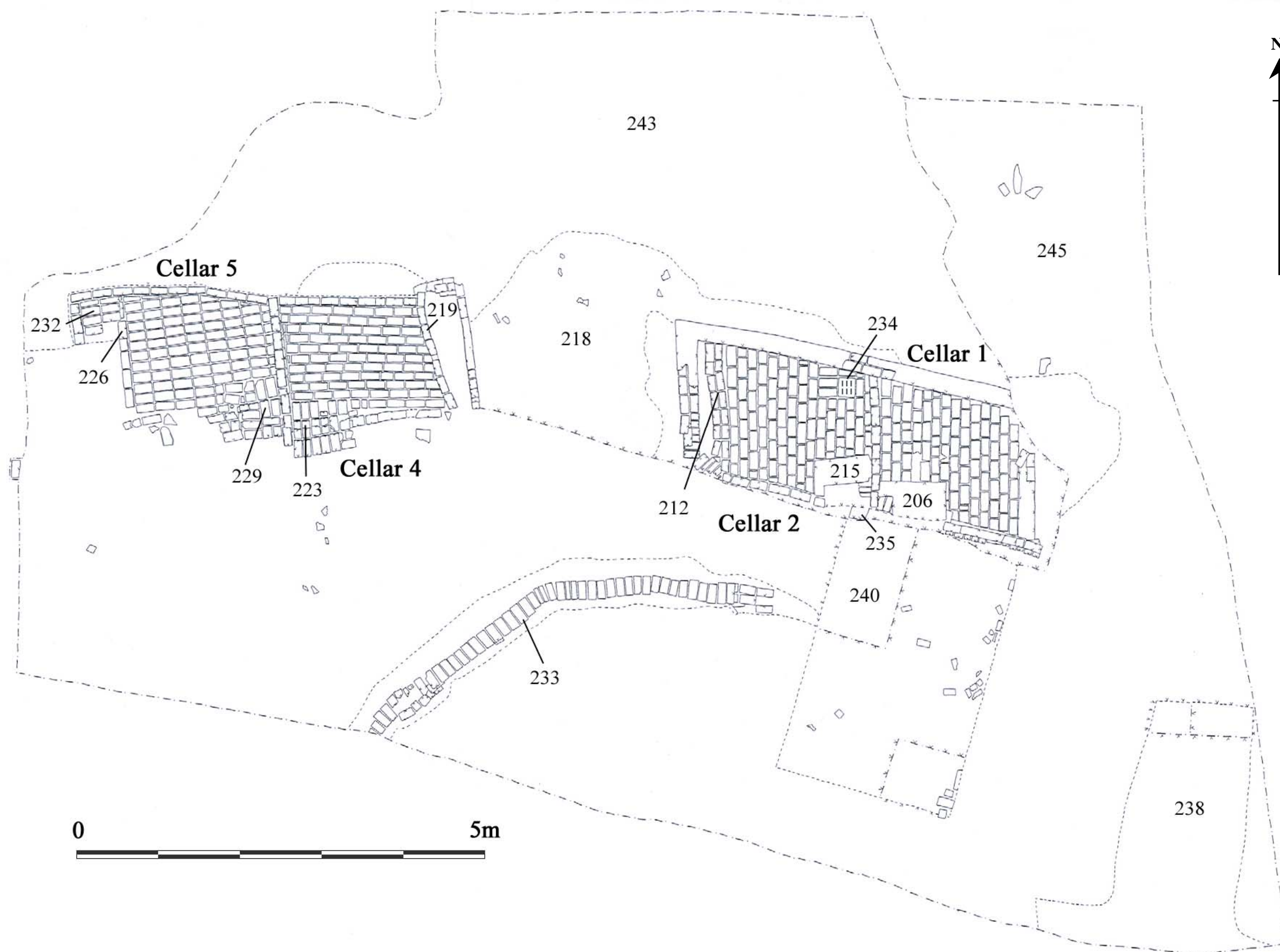


FIG. 13
Post-excavation plan of trench 2

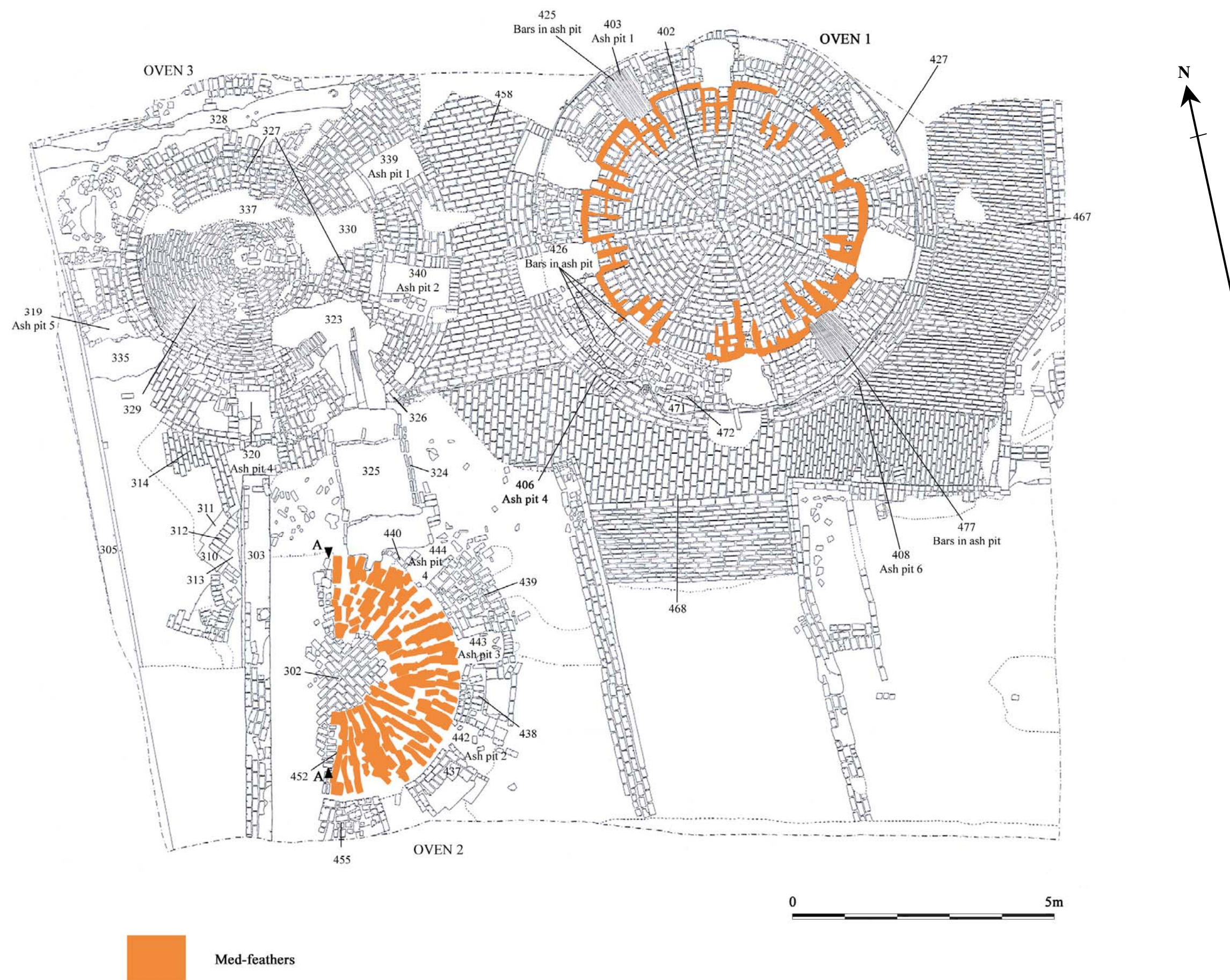


FIG. 14
Post-excavation plan of trench 3/4

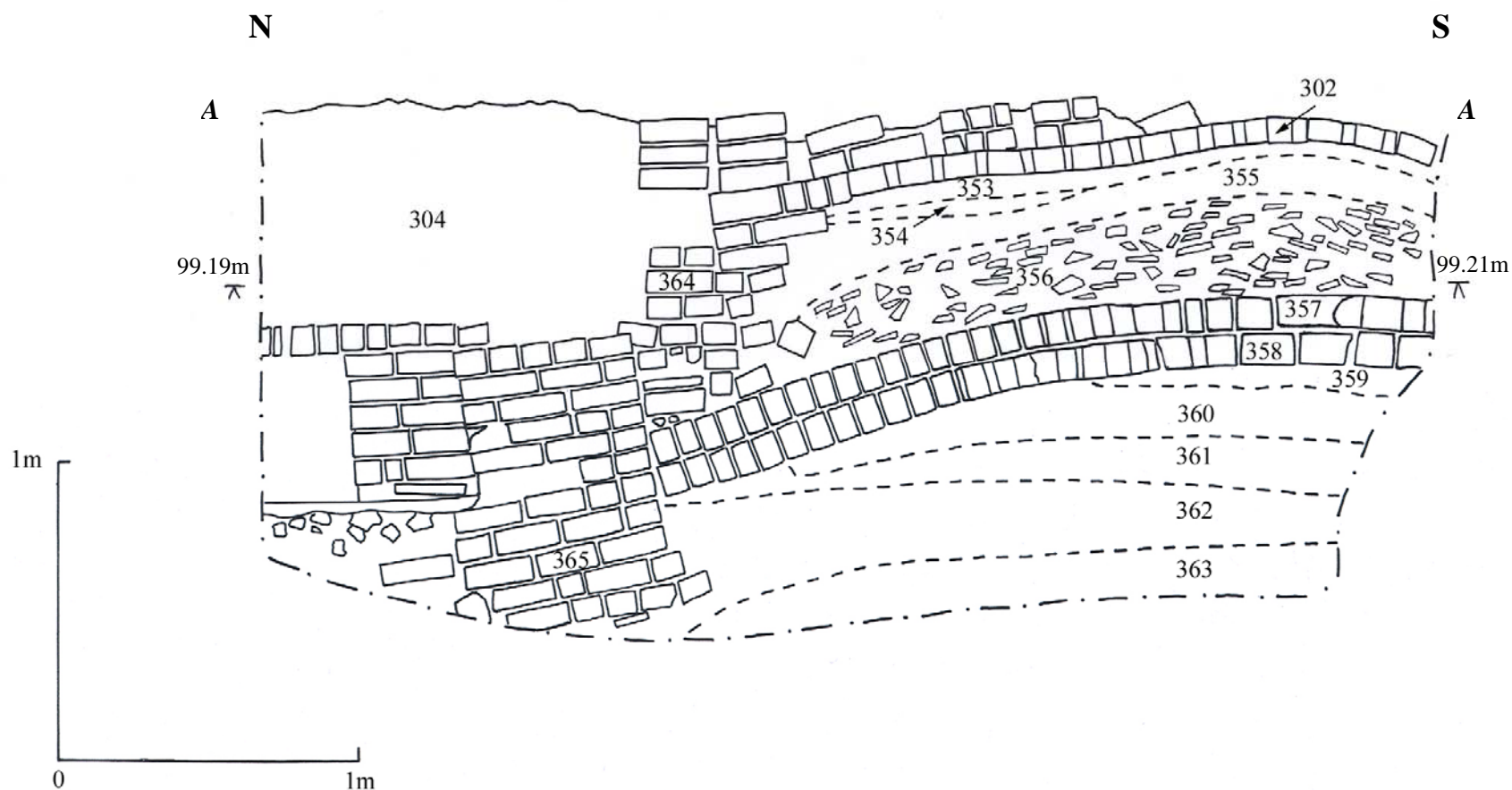


FIG. 15

West-facing section through oven 2, trench 3/4



PLATE 1

Trench 1, looking west



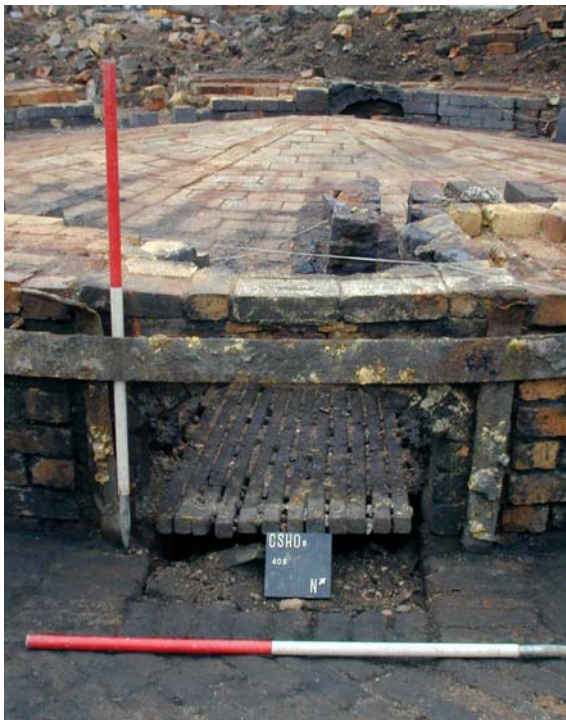
PLATE 2

Trench 2, looking south west (cellar 5 is in the foreground)



PLATE 3

Trench 3/4, oven 1, looking north west



a



b

PLATE 4

a) Iron fire bars [477] running longitudinally above ash pit 6, oven 1 *b*) Iron fire bars [426] positioned laterally in ash pit 4, oven 1



PLATE 5

Trench 3/4, showing entrance to oven, looking north



PLATE 6

Trench 3/4, oven 2, looking north



PLATE 7

Trench 3/4, section A-A, oven 2. Looking south east



PLATE 8

Trench 3/4, oven 3, looking east



PLATE 9

18th-century moulded and colour-glazed creamwares from [203]: melon (top left), cauliflower (top centre & right), pineapple (bottom left and centre) and fruit basket (bottom right)



PLATE 10

Printed mark of Livesley Powell & Co., 'Abbey' pattern

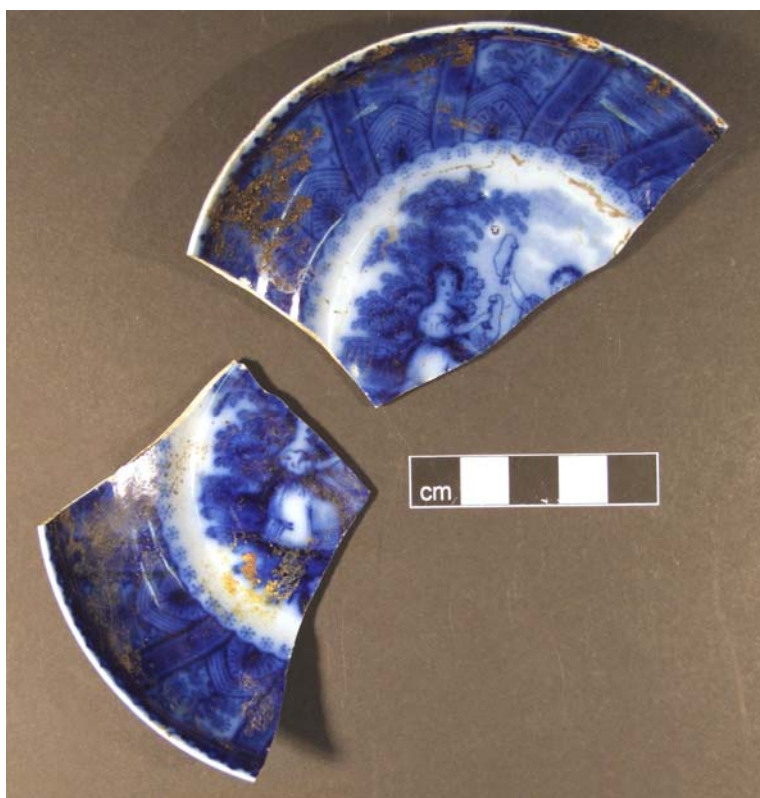


PLATE 11

‘Juvenile Sports’ print by W. & J. Harding of the New Hall Works

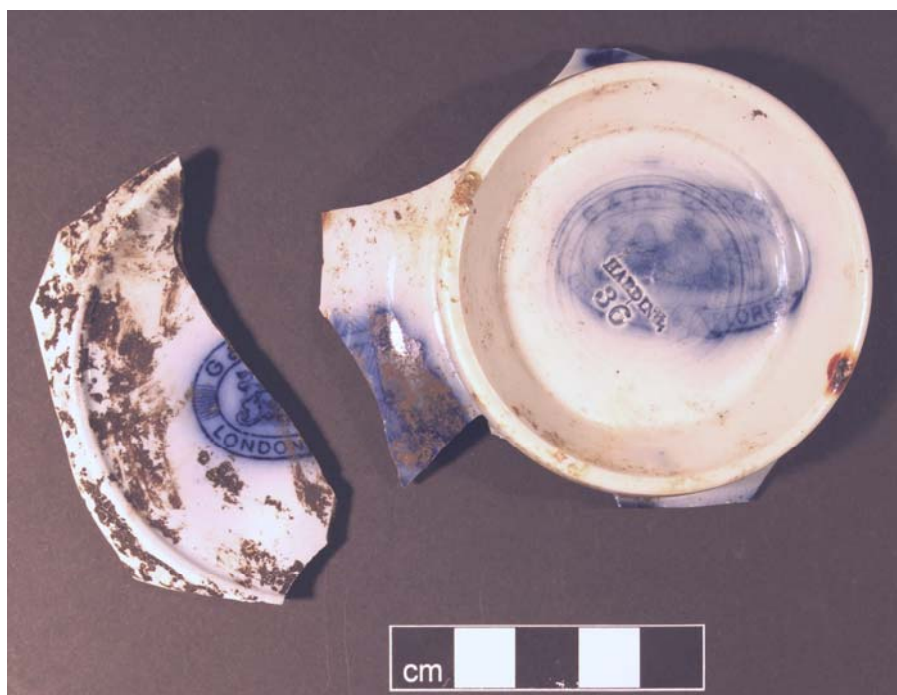


PLATE 12

Printed mark of G & F [W] Cecchi on wares of W. & J. Harding (note impressed mark on right-hand sherd)

Appendix 1: List of Ceramic Finds from Century Street

Trench No.	Context	No. Shds.	Wt. (g)	Description	Date
1	104	13	336	Small collection of e'wares, some transfer printed	late 19th century
	128	5	206	Small group of durable e'wares, one of which is red bodied	late 19th-early 20th century
	131	111	2531	Collection of, predominately, transfer-printed e'wares, with some slip-decorated and sponge-decorated e'wares. A few Jet wares and ironstone types are also present. Impressed marks of W & J (?) Harding (1862-72), C&H Hackwood and printed mark of William Hackwood and Son (1846-9) (this also has impressed Harding mark). All were occupants of the New Hall Pottery, Shelton. One impressed Harding piece has printed mark of an importer 'G & F [W] CECCHI L[ONDON] & FLORENCE'.	1862-72
	158	8	130	E'wares - mostly transfer printed	mid-late 19th century
	163	6	240	Small group of durable e'wares	late 19th-early 20th century
2	201	3	52	Three sherds - one creamware holloware, one creamware feather-edged plate sherd and one white salt-glazed stoneware dot and diaper/basketwork moulded plate rim sherd.	c .1760-80
	203	65	470	An assemblage dominated by creamwares, many of which are either tortoiseshell decorated or pineapple and cauliflower moulded with coloured glazes. Some white salt-glazed stonewares are present, as is one mottled ware sherd. A few sherds of intrusive later material features, namely banded and gilded e'ware and slip-decorated e'ware.	c .1760-80
	239	8	96	Handful of fragments, most of which represent salt-glazed stoneware kiln furniture. Some later e'ware is also present	18th-19th century
	241	23	560	Small group of mid-late 18th-century white salt-glazed stonewares (including scratch blue) and one creamware feather-edged platter rim sherd. Some later 19th- and possibly 20th-century material is also present	18th-20th century
	247	25	364	Small number of salt-glazed and earthenware kiln furniture with a few vessel sherds	18th-19th century
	248	37	960	Small group including white salt-glazed stoneware kiln furniture and slat-glazed saggar, colour-glazed creamware, painted pearlware and biscuit-fired e'ware.	18th-19th century

Trench No.	Context	No. Shds.	Wt. (g)	Description	Date
3	301	113	2605	Group of e'wares, mostly biscuit-fired and undecorated. Most of the decorated sherds are	late 19th century
	306	150	4100	Biscuit-fired and glazed durable e'wares, mostly undecorated. Some of the kiln furniture.	late 19th century
	343	12	354	Small collection of undecorated, utilitarian e'wares	late 19th-20th century
	348	35	1305	Predominately biscuit-fired, undecorated e'wares, small range of vessel forms - mainly plates	late 19th-20th century
	351	12	422	Biscuit-fired and glazed, durable e'wares - some of the glazed examples are transfer-printed.	late 19th-early 20th century
	363	11	560	Mostly table wares - principally transfer-printed e'wares (mostly 'Abbey') and undecorated ironstones, many of which have the printed mark of Livesley Powell and Co. of the Old Hall Lane and Mile Bank Potteries, Hanley (1851-66).	1851-66
4	445	6	1815	E'ware kiln furniture and saggar fragments. One e'ware light fitting fragment	early 20th century
	463	33	1530	E'ware kiln furniture with some glazed and biscuit vessel sherds, one of which has the printed mark, 'NEWHALL ROYAL WARE'	20th century
Totals		676	18636		